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# **Lingraphica: Speech Generating Device for Aphasia**

## **Closing the Gap**

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## **Lingraphica Research & Development**

- Culmination of a long line of research
- 16 years of development in the field
- Boston VAMC ('70s) – Pre-computer VIC phase
- Palo Alto VAMC ('80s) – C-VIC phase
- Lingraphicare (1991 – Present)



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## **Aphasia: little known but prevalent**

- Major cause in US is stroke ~700,000 strokes/year
- New aphasia cases per year ~100,000  
(ALS ~5,000; CP ~10,000)
- Currently ~1,000,000 Americans living with aphasia
- Year 2020 prevalence of aphasia projected: ~2,000,000
- Why: aging US population, more stroke survivors, living longer



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## **Characteristics of Aphasia patients**

- Most are older - different communication needs than children
- Re-acquiring language rather than learning
- Cognitive in addition to physical deficits
- Comprehension often better than expression leading to frustration
- Potential for ongoing improvement



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## **Communication style of Aphasia patients**

- More storytelling, less small talk
- Personal topics are important
- “Co-constructed communication”
- Cautious users: don’t like to experiment
- Significance of the past



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## **Communication needs of Aphasia patients**

- **Home:** socializing, eating, dressing
- **Medical:** describing ailments, managing medications, talking to doctor
- **Phone:** calling and answering
- **Community:** shopping, participating in social groups & support groups, news



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## **Communication**

- Immediate functional communication
- Easy to customize

## **Therapy**

- Unlimited speech practice for life
- Standard therapy exercises – easy way to introduce the device



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## **Quantitative Improvements in Chronic Aphasia, following Lingraphica Use**

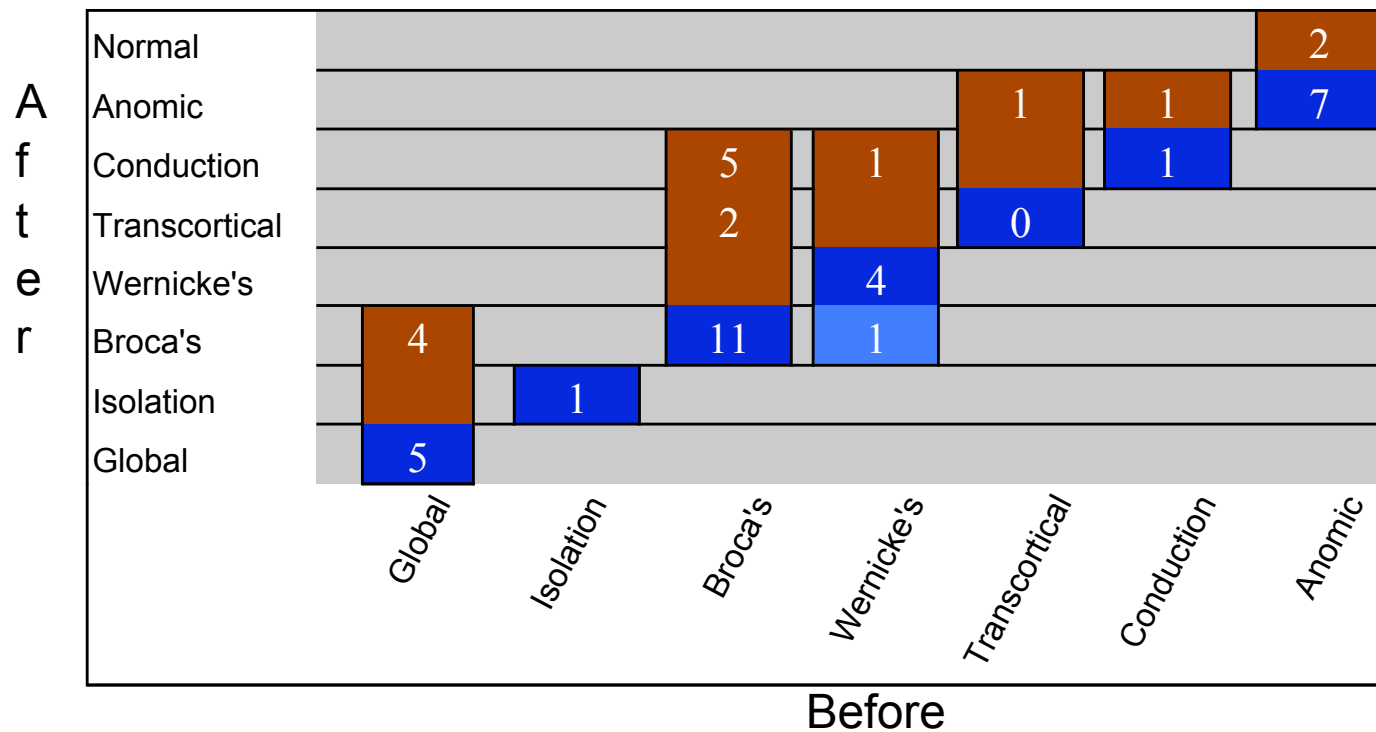
- Years, even decades, post-onset
- In all diagnostic categories of aphasia
- At all severity levels within diagnoses
- Following plateau in other therapy courses
- Clinical studies on over 1,000 patients





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## 37% Improved Chronic Diagnoses

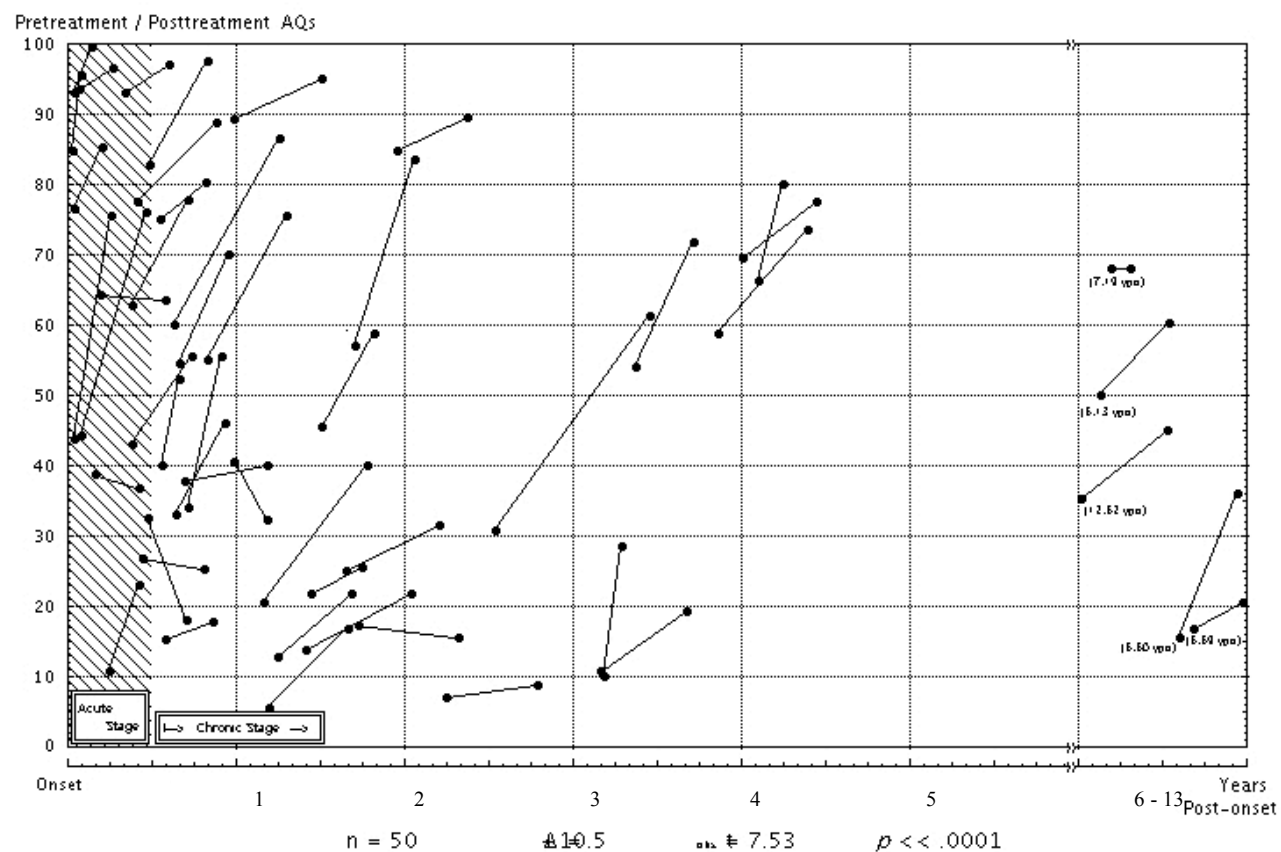




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## In Clinic (WAB)

Figure 1: WAB Aphasia Quotients vs. Years Post-Onset

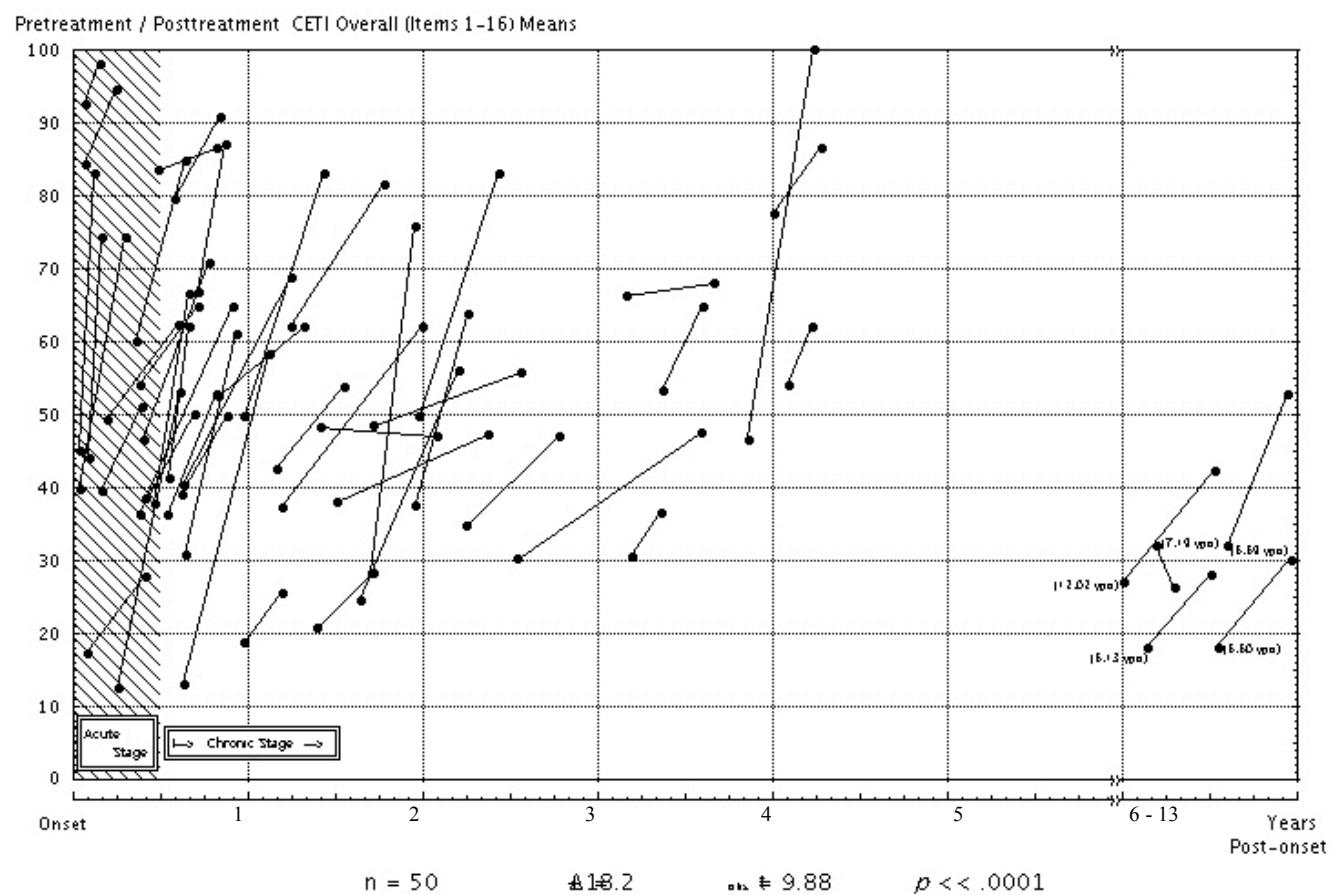




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## In Everyday Life (CETI)

Figure 2: CETI Overall Scores vs. Years Post-Onset





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## **Obstacles to using SGDs with Aphasia**

- Not standard treatment for aphasia
- Extreme variability in Aphasia
- Most patients are in their 60's and 70's - apprehensive about technology
- Patients are often depressed
- SLPs time pressure
- Obtaining insurance benefits is daunting
- Using an SGD can seem like “giving up on speech”



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## **Support & Training**

- Unlimited training and support for life for user & caregivers
- We have SLPs and other clinicians on staff
- Phone
- Video built in to the Lingraphica
- Live web-based training
- Live remote-control support



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## **Getting a Lingraphica**

- Identify client candidate
- Call Lingraphicare 888 APHASIA (888-274-2742)
- Discuss client qualification & check benefits
- Receive Lingraphica loaner for no-risk client trial
- Receive training and support
- Arrive at decision with client, client's family
- Fill out special CMN, Lingraphica obtains prescription & submits to insurer
- New Lingraphica shipped to client